

## Project Progress

### Overview

The Europa Focus group (EFG) was formed in 2001 in recognition that Europa, a moon of Jupiter, is a high priority object for astrobiological exploration. The goals of the EFG were to foster research dealing with Europa and to encourage the formation of collaborations among planetary scientists, sea-ice experts, chemists, and biologists familiar with ice-rich environments.

The general approach to meet the goals of the EFG was to hold a series of workshops, each of which was organized into two parts: Part 1, consisting of presentations in which participants would share the results of their research, and Part 2, consisting of topical discussions on issues (such as future missions) from which a consensus might be derived. The EFG was the first Astrobiology Focus Group that was open to the entire community; workshops were widely advertised for participation and registration fees were kept to a minimum; the only requirement was that participants had to submit an abstract outlining their relevant work. The formal presentations by each participant were short (5–10 minutes) and organized in alphabetical order by presenter, rather than by sub-topic. This helped to ensure that participants would remain to hear all of the presentations, and to encourage "off-line" interdisciplinary interactions.

### Results

Three workshops and one field conference were held by the EFG. The first (kick-off) workshop was held at NASA-Ames Research Center 1–2 February 2001. In addition to participant presentations, the general goals and approach of the EFG were discussed and ideas solicited for future meetings. The second and third workshops were held at the U. S. Geological Survey field center in Flagstaff, Arizona in September 2001 and May 2002, respectively. Discussions included issues such as future missions to Europa and potential landing sites appropriate for astrobiological exploration. The fourth workshop was held as a field conference in Barrow, Alaska, to provide the participants with the opportunity to visit sea-ice first-hand under the guidance of terrestrial ice experts. The workshop was held at an Arctic research center to take advantage of local logistics, including the use of housing and snowmobiles for excursions

onto the sea ice.

Abstracts of work by each participant from the workshops are posted on the Astrobiology website at <http://astrobiology.asu.edu/focus/europa/discuss/discuss.html>.

In the latter stages of the EFG, participants played an increasingly important role in NASA "programmatics," first by serving on the National Research Council (NRC) committee chartered with the responsibility of formulating the scientific goals for future solar system exploration and, second, by serving on the NASA Science Definition Team for the Jupiter Icy Moons Orbiter (JIMO) project. The "flagship" mission recommended by the NRC group was a project to Europa. The JIMO project was NASA's response to the NRC recommendation, and consists of a substantially more capable mission than originally envisioned. In both the NRC and JIMO committee discussions, the results of the EFG played an important role. For example, one of the key recommendations of the JIMO SDT is the inclusion of a landed package on Europa. The rationale for such a landed package was derived directly from EFG discussions and recommendations.

## **The Future**

With the current restructuring at NASA and the formation of the exploration theme focusing on the Moon and Mars, the future of outer solar system programs remains uncertain. The JIMO project remains, but the current separation of science from engineering may cloud the prospects for near-term science returns. This situation means that the planetary science community must remain resolute in ensuring that NASA's exploration program is "science-driven;" to be effective in this approach, the community must speak with a relatively uniform voice in which a consensus is put forward for scientific goals and priorities, including the spacecraft projects and related programs to meet those goals. It is likely that Astrobiology Focus Groups can continue to serve in the role of providing a venue for deriving such a consensus.